

CLAIMS

What is claimed is:

1. An audio speaker comprising:
 - a motor assembly including,
 - a magnet,
 - a first magnetically conductive member magnetically coupled to the magnet, the first magnetically conductive member comprising a plurality of laminated layer sections which are magnetically coupled to but electrically insulated from each other, and
 - a second magnetically conductive member magnetically coupled to the magnet,
 - a magnetic air gap between the first and second magnetically conductive members;
 - and
 - a diaphragm assembly coupled to the motor assembly and including a voice coil disposed within the magnetic air gap.
2. The audio speaker of claim 1 wherein:
 - each of the laminated layer sections has a substantially uniform thickness.
3. The audio speaker of claim 1 wherein:
 - the laminated layer sections are not all of the same thickness.
4. The audio speaker of claim 1 wherein:
 - each of the laminated layer sections has a substantially wedge shape.
5. An audio speaker comprising:
 - a diaphragm assembly including a voice coil; and
 - a motor assembly including,
 - a first magnetically conductive member,
 - a first laminated structure in which a plurality of magnetically conductive sections are mechanically coupled together and electrically insulated from each other to prevent eddy currents which would otherwise be induced by an electrical current applied to the voice coil,
 - and

9 a magnet magnetically coupled between the first magnetically conductive member
10 and the laminated structure,

11 wherein the first magnetically conductive member and the laminated structure define
12 between them a magnetic air gap within which the voice coil is disposed.

1 6. The audio speaker of claim 5 wherein:
2 the first laminated structure comprises a top plate.

1 7. The audio speaker of claim 5 wherein:
2 the first laminated structure comprises a pole yoke.

1 8. The audio speaker of claim 5 wherein:
2 the first laminated structure comprises a cup yoke.

1 9. The audio speaker of claim 5 wherein:
2 the first laminated structure comprises a tube yoke.

1 10. An improvement in a electromagnetic motor structure which includes a magnetically
2 conductive yoke, a magnetically conductive plate defining a magnetic air gap with the yoke, and a
3 permanent magnet magnetically coupled between the yoke and the plate, wherein the improvement
4 comprises:

5 at least one of the yoke and the plate being comprised of multiple components laminated
6 together so as to be electrically insulated from each other;

7 whereby the at least one of the yoke and the plate which is laminated has a significantly
8 reduced susceptibility to eddy currents being induced therein by a varying magnetic flux field from a
9 voice coil in the magnetic air gap.

1 11. The improvement in the electromagnetic motor structure of claim 10, wherein the
2 improvement further comprises:

3 the multiple laminated components each having one of a substantially flat shape and a
4 substantially wedge shape.

1 12. The improvement in the electromagnetic motor structure of claim 10, wherein the
2 improvement further comprises:
3 both the yoke and the plate being so laminated.

1 13. The improvement in the electromagnetic motor structure of claim 10, wherein the
2 improvement further comprises:
3 the yoke comprising one of a cup, a pole plate, and a tube.